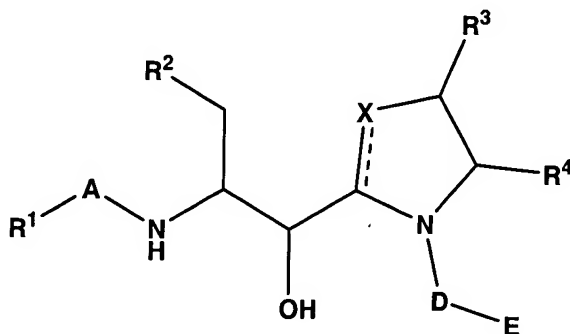


**A1** -- 23. A compound of the formula:



wherein

A is selected from the group consisting of: a direct bond,  $-\text{SO}_2-$ ,  $-\text{NHSO}_2-$ ,  $-(\text{C}=\text{O})-$ ,  $-(\text{C}=\text{S})-$ ,  $-\text{NR}^5(\text{C}=\text{O})-$ ,  $-\text{O}(\text{C}=\text{O})-$ , and  $-\text{C}(\text{R}^6\text{R}^7)(\text{C}=\text{O})-$ , wherein  $\text{R}_5$ ,  $\text{R}_6$ , and  $\text{R}_7$  are independently selected from the group consisting of hydrogen and lower alkyl;

D is selected from the group consisting of:  $-\text{SO}_2-$ ,  $-(\text{C}=\text{O})-$ , and  $-(\text{C}=\text{S})-$ ;

E is selected from the group consisting of:  $\text{C}_1$ – $\text{C}_{10}$  hydrocarbon, substituted aryl, heterocyclyl, and substituted heterocyclyl;

X is selected from the group consisting of:  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{NR}^8-$ , and  $-\text{N}(\text{R}^8)(\text{C}=\text{O})-$  wherein  $\text{R}^8$  is selected from the group consisting of: absent, hydrogen, and lower alkyl;

// is a single bond, or in the alternative, when X is  $\text{NR}^8$  wherein  $\text{R}^8$  is absent, is a double bond;

$\text{R}^1$  is selected from the group consisting of  $\text{C}_1$ – $\text{C}_{20}$  alkyl, aryl, alkylaryl, substituted alkylaryl,  $\text{C}_1$ – $\text{C}_{10}$  alkyloxy,  $\text{C}_3$ – $\text{C}_{10}$  oxaalkyl, aryloxy, substituted aryl, substituted aryloxy, heterocyclyl, and heterocyclyloxy;

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$R^2$  is selected from the group consisting of:  $C_1$ – $C_{10}$  hydrocarbon, substituted aryl, and heterocyclyl; and

$R^3$  and  $R^4$  are independently selected from the group consisting of:  $C_1$ – $C_{20}$  alkyl,  $C_1$ – $C_{10}$  hydrocarbon, aryl, substituted aryl, alkylaryl, substituted alkylaryl, heterocyclyl, and substituted heterocyclyl; or, in the alternative,  $R^3$  and  $R^4$  taken together with the carbon atoms to which they are attached form a cyclic moiety selected from the group consisting of: aryl and substituted aryl.

24. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a compound according to claim 23, or a pharmaceutically acceptable salt or solvate thereof.

25. A pharmaceutical composition according to claim 24, further comprising at least one additional antiviral agent.

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